Apps for the Environment Challenge: Lessons Learned

Audience and purpose
This document describes EPA's process and lessons learned in conducting the Apps for the Environment Challenge. It is intended for government agencies that are considering using a challenge to encourage software developers to make apps, and it could be useful to other parties as well. EPA's Office of Environmental Information (OEI) is willing to meet with people to discuss these topics in more detail.

1. Introduction
The U.S. Environmental Protection Agency (EPA) held a successful developer challenge, called the Apps for the Environment Challenge, that yielded 38 environmental apps. The project was the brainchild of Aneesh Chopra, Chief Technology Officer of the U.S. Mr. Chopra suggested that Malcolm Jackson, Chief Information Officer and Assistant Administrator of OEI, conduct such a challenge in the summer of 2011.

EPA Administrator Lisa P. Jackson kicked off the challenge at the U.S. Department of Health and Human Services (HHS) Health Data Initiative Forum in June 2011. The objective of the challenge was simple: use EPA data to make applications that address Administrator Jackson's seven priorities. The prize was recognition at a high profile event, but no cash was offered. We provided developers with our data and we used social media and other means to reach out to developers so they would understand the data and be aware of the challenge.

The primary benefit of the challenge is that the public now has 38 applications to help them make informed environmental decisions. It also demonstrates that federal data, when easy to find and understand, can be put to good use by developers to benefit the American public. It shows that federal agencies can successfully engage developers and other stakeholders to leverage their data assets. EPA hopes to grow from this challenge and help others use their data for the public good. If we can help others tap into the creativity of our citizens, lasting benefits can be shared by all.

2. Our process
Here are the major steps we followed in developing and implementing the challenge.
1. **Define long term goals**: EPA secured buy in from senior managers, defined measures of success, and informed internal stakeholders so they could contribute data and subject matter expertise.
2. **Structure the challenge**: We received expert advice from HHS based on their experience making data available for developers. The challenge team also asked developers what they wanted and provided it to them (e.g., Developer Resource Page, Data Finder website). We conferred with our Office of General Counsel to develop sound rules, selected senior managers and program staff as judges, and set up four teams to manage the process (marketing, judging, recognition event, and future planning). We decided to select winners in two categories: best overall app and best student app, and runners up in each group. In addition, the public could vote for the people's choice award. The agency decided not to offer cash awards, but instead to pay for students and small companies to attend the recognition event.
3. **Launch the challenge**: Per Aneesh Chopra's suggestion we secured Administrator Jackson to launch the challenge at the HHS Health Data Initiative Forum. At the same time, we launched our challenge website and took advantage of the Challenge.gov website to help manage the challenge process. We created a video to appeal to software developers. Finally, we set up a Data and Developer Forum and set up an email account to ensure that we could communicate with developers through several means.
4. **Market the challenge**: We created a social media strategy to reach developers and others through many communications channels. We selected a theme for each week and coordinated outreach on the Data and Developer Forum, Twitter, FaceBook, our challenge website, and the new EPA App Developer listserv, which has 3,300 subscribers. We also met developers in person at developer meetings (e.g., DC Tech Meetup) and at a hackathon sponsored by American University. We also held webinars about our data, where subject matter experts and data owners described the data

and provided points of contact for developers. Our external affairs office pitched the story to media outlets and we met with program offices and used our discussion forum to engage the public, which resulted in over 100 ideas for apps. Finally, we reached out to students and summer camps via email since the challenge was held over the summer.

5. **Judge submissions**: The challenge team prescreened the 38 submissions and selected a subset of 12 of them so the judges could spend about two hours to judge the submissions. Submissions were judged based on the challenge requirements and criteria, usefulness, innovativeness, and usability, on a scale of one to five. The challenge team worked with agency security staff to apply a set of security screens to the submissions. In order to reduce security risks, the judges evaluated submissions using devices that were not connected to the agency's network.

6. **Recognize winners**: EPA recognized the winning submitters at a half day recognition event. The event included high profile keynote speakers from the White House as well as a panel of business, technology, and user perspectives. EPA programs led breakout sessions and provided exhibits along with other organizations. The range of participants included members of EPA and other agencies, companies, universities, non-profits, and developers.

7. **Evaluate what worked**: EPA is evaluating what worked and what we could improve upon. We plan to hold feedback sessions with external groups to hear what they need from federal data providers. Similarly, we are analyzing the submissions and the ideas for apps so the public and EPA's programs can use them. EPA is continuing to recognize all of the submissions in order to learn what data and services we can provide and to help the developer community collaborate. Finally, we are maintaining communication with the developer community through our listserv and other communication channels.

3. Critical Success Factors

Here are a few factors that made EPA's challenge a success.

- **Engage developers**: The team spent a lot of time understanding what developers want. We met with them, interviewed them on the phone, and interacted with them at a hackathon. This provided valuable insight into their needs and drivers.
- **Provide infrastructure that developers want**: Based on developers' needs, we created a simple Developer Resource Page that served as a storefront for EPA's data, data services, ideas for apps, and existing apps. The weekly webinars about EPA data provided access to data and programmatic experts.
- **Connect with users**: The Data and Developer Forum provided an easy place to post ideas, tell people about new data offerings, and report on progress. We used the forum to encourage people to submit ideas for apps.
- **Partner with stakeholders**: We reached out to the agency's program offices to understand their needs and the needs of their constituents. We also provided them with speaking opportunities at our recognition event so they could get feedback about their needs. This kind of interaction helped connect the people who have the needs with the people who have the data.
- **Reach out to influential parties**: As we worked directly with developers and the open data community we asked some influential parties to publicize the challenge and speak at our webinar about how agencies can help developers.
- **Leverage social media**: We leveraged social media to reach people beyond our direct network. We used the social media accounts of EPA and directed people to our weekly posts on the Data and Developer Forum.
- **Coordinate internal activities**: It was very helpful for our four teams to define roles and responsibilities and work together. We tracked our tasks carefully and had team check-ins three times per week. We met as a larger group once per week and we briefed senior management once per month.

4. Lessons Learned

This was EPA's first developer challenge and here are a few lessons we learned:

- **Structure the challenge so all stakeholders win**: A project like this will only work if all key stakeholders get something out of it. Developers need recognition, data, and expertise. Users need to know that people want to hear their ideas. Data providers need to see that their data can be leveraged to yield more value. It will take a lot effort to effectively connect users and developers.
- **Make the data/user/developer connection sustainable**: Challenges are great for raising awareness of data availability and user needs. We are evaluating ways to maintain the developer community we initiated and achieve results with fewer staff resources. We are also aware that developers deserve funds for creating apps and we are encouraging discussion on that front.
- **Get internal buy in**: The challenge requires culture change, especially for data providers. We leveraged EPA's workgroups for Open Government and the Strategic Data Action Plan to clarify the benefits of data use and explain that data providers are a critical part of the solution. Many data providers understand the benefits, but sometimes see themselves as data managers, not necessarily data access providers.
- **Partner with complementary parties**: Because this was a new kind of effort for EPA we searched for parties who could complement our strengths. HHS provided helpful advice about structuring the challenge and how to make data available. EPA's program offices are also partners because they both provide data and gain from the resulting apps. We sought advice from our external affairs office for the video, web presence, and listserv.
- **Listen to what your stakeholders need**: It helps to have an open mind for projects like this. We adjusted our activities based on what we learned as we went along.

5. Beyond the Challenge

We are pleased that the challenge was such a success and we are planning activities to continue to make progress. All of the stakeholders involved encouraged us to consider the challenge as a point of departure and to continue fostering the apps community. Ideally, we can connect app users, app developers, and data providers in a more integrated community that meets our collective needs. We are planning to build this community in several ways.

First, we can continue to support developers through a more robust developer center that builds on the simple Developer Resource Page. Such a center would provide easier access to a broader range of EPA's data and data services and to data experts who can provide context. This center can also provide how-to guides for creating apps using our data. Second, we can help developers and users of apps find each other. EPA will organize the list of ideas from users according to environmental topic and audience. Third, we can support other programs and agencies as they work with developers. We can help them clarify their needs and create informal requirements documents that developers can use to build apps. EPA can provide advice and leverage our communications channels.

EPA has proved that it has the ability and the infrastructure to engage the stakeholders that provide and use data. EPA can remain a leader in this field and work with the community to determine the path forward in a collaborative fashion. We are also eager to help others reach out to their audiences and fulfill their missions, with challenges or otherwise. EPA can continue to help people use environmental data to make informed decisions.

References

EPA's Apps for the Environment Challenge page: http://www.epa.gov/mygreenapps/challenge.html
The Apps for the Environment Challenge.gov site: http://appsfortheenvironment.challenge.gov
EPA's Open Gov Plan: http://www.epa.gov/open/plan.html
EPA Developer Central website: www.epa.gov/developer
EPA's Information Access Strategy: http://www.epa.gov/nationaldialogue/FinalAccessStrategy.pdf
HHS Health Data Initiative Forum: http://bit.ly/rWlMbU

If you have questions, please send them to greenapps@epa.gov.